

## STATUS OF CLAIMS AND SUPPORT FOR CLAIM CHANGES

Claims 1-19 of Patent No. 5,975,852 have been canceled, as have the added claims 20-30, 33, 35 and 36. The remaining added claims 31, 32 and 34 are pending.

The currently amended claims recite a calcining reactor. This is supported by the following disclosure in column 5, lines 51-53 of Patent No. 5,975,852:

“The calcination products exit the vertical calcining reactor 14 and travel through the high temperature cyclone 20, which is located parallel to the calcining pipe.”

The currently amended claims further recite that the calcining reactor has a calcining zone. This is supported by the following disclosure in column 5, lines 10-16 of Patent No. 5,975,852:

“As mentioned above, the feed material is discharged from the silo’s storage compartment into the feed pipe 44 through rotary valves 30 and pneumatically conveyed tangentially into the calcining zone of the reactor 14, thus producing a cyclonic action that characterizes the flow of the fluidized reactants during calcination”.

The currently amended claims additionally recite a burner arranged to produce a flame within a region internally of the calcining reactor. This is supported by column 3, lines 45-46 of Patent No. 5,975,852:

“The burner 36 is mounted vertically in the calcining pipe to create an upward flame within the cyclonic feed region.”

The currently amended claims also recite the production of a swirling flow of particulate material around the flame region. This is supported by column 2, lines 29-31 of Patent No. 5,975,852:

“The feed pipe is connected tangentially to the reactor so as to produce an upward swirling flow around the burner’s flame.”

The currently amended claims further recite that the burner is designed to generate hot combustion gases and that a gradual blending of the particulate material with the hot combustion gases takes place. This is supported by column 5, lines 23-25 of Patent No. 5,975,852:

“The tangential flow of the feed into the calcining pipe provides the gradual blending of the feed material with the hot combustion gases, which results in avoidance of sintering of the feed material.”

The currently amended claims additionally recite that the calcining reactor is uninsulated internally thereof along the calcining zone. This is supported by column 6, lines 12-13 of Patent No. 5,975,852:

“This arrangement also avoids the need for expensive refractory material to insulate the equipment.”

## REMARKS

Claim 31 has been amended to: (a) replace the term “calcination” with the term -calcining- found in Patent No. 5,975,852; (b) replace the phrase “means defining a calcination zone” with the term -a calcining reactor-; (c) delete the term -peripheral wall-; (d) add a burner which is arranged to produce a flame within a region internally of the calcining reactor and is designed to generate hot combustion gases; (e) replace the phrase “means for transporting particulate material through at least part of said calcination zone along a substantially cyclonic flow path” with the phrase -means for producing a swirling flow of particulate material around the flame region and a gradual blending of the particulate material with the hot combustion gases; and (f) replace the phrase “said peripheral wall being substantially free from refractory insulation along said part of said calcination zone” with the phrase -said calcining reactor being uninsulated internally thereof along said calcining zone-. Claims 32 and 34 have been amended into conformance with the amended claim 31.

The Examiner states that the applicant’s paper filed 12/13/2006 proposes amendments to the specification and claims which do not comply with 37 CFR 1.173(b).

The Examiner remarks that the canceled original claims 1-19 must be reproduced and provided with brackets for deletion. However, the applicant notes that 37 CFR 1.173(b) requires cancellation of added claims and patent claims by a statement cancelling the claims without presentation of the text of the claims.

The Examiner further remarks that new claims higher than the original claims must be underlined in their entirety. The applicant has underlined in their entirety all pending claims that were not in the patent being reissued.

Claims 31-36 are rejected under 35 USC 251 as being based upon new matter because the recitation of the peripheral wall “being substantially free from refractory insulation along said part of said calcination zone” is not supported by the originally filed specification. Although the applicant believes that support does exist, the applicant has nevertheless rephrased the quoted language.

Claims 31-36 are additionally rejected under 35 USC 251 as being based upon a defective reissue declaration since the latter fails to recite the alleged error regarding the peripheral wall being substantially free from refractory insulation along part of the calcination zone and the alleged error regarding a temperature of at least 1700°F in the calcination zone.

The applicant has filed on June 19, 2007, a new reissue declaration which is believed to properly set forth the alleged errors upon which the present application is based.

Claims 31-36 are also rejected under the first paragraph of 35 USC 112 because the recitation of the peripheral wall “being substantially free from refractory insulation along said part of said calcination zone” is not supported by the originally filed specification. This rejection is believed to be moot inasmuch as the applicant has deleted the quoted language.

Claims 31-36 are further rejected under the second paragraph of 35 USC 112 since: (a) the language “being substantially free from refractory insulation along said part of said calcination zone” is a negative limitation; (b) the specification fails to explain what is meant by “substantially free from refractory insulation”; and (c) the Examiner fails to understand the meaning of “substantially”. This rejection is also believed to be moot because the applicant has deleted the language in question.

In the remarks accompanying the rejection of claims 31-36 under the second paragraph of 35 USC 112, the Examiner requests affidavits to support the applicant’s statement that the applicant has successfully operated a calcining reactor at high temperatures without refractory insulation to protect the peripheral wall. Such an affidavit was provided with the Response filed on June 19, 2007.

Claims 31-36 are additionally rejected under 35 USC 102(e) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over U.S. Patent No. 5,713,734 to Makris. Claims 31-36 are also rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over U.S. Patent No. 3,881,862 to Nishida.

The applicant notes that it is standard practice in the art to internally insulate reactors operating like those of Makris and Nishida along the calcining zone. Since neither Makris nor Nishida indicates that the reactors are internally uninsulated along the calcining zone, the conclusion is that these references operate in accordance with standard practice. Hence, claims 31, 32 and 34 are not anticipated by Makris or Nishida.

Moreover, inasmuch as neither Makris nor Nishida recognizes that it is possible to operate in the absence of internal insulation along the calcining zone, the references are unable to motivate one of ordinary skill to forego internal insulation along the calcining zone. Accordingly, claims 31, 32 and 34 do not become obvious from Makris or Nishida.

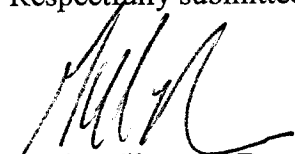
Regarding the rejection under 35 USC 102(e), the Examiner's attention is respectfully invited to the previously filed affidavit of Mr. John D. Macfadyen who has over 40 years experience in minerals and metals processing. In paragraph 9 of the affidavit, Mr. Macfadyen states that he is familiar with the calcining systems of Makris and Nishida and that the calcining reactors of these references are, in fact, internally lined with refractory insulation.

The Examiner's attention also is respectfully invited to paragraph 12 of the previously filed affidavit. Here, Mr. Macfadyen explains why it cannot be obvious to eliminate the internal refractory insulation of Makris and Nishida.

In view of the foregoing, it is respectfully requested that the rejections of claims 31, 32 and 34 be withdrawn.

Please charge any costs associated with this response to our Deposit Account No. 17-0055.

Respectfully submitted,



Gavin Milczarek-Desai  
Registration No. 45,801  
(520) 770-8716 Telephone  
(520) 770-2235 Fax